

CLAIMS

We claim:

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1. A transgenic plant comprising heterologous nucleic acid sequences encoding a double stranded nematode RNA sequence, wherein said double stranded RNA sequence inhibits the proliferation of nematodes ingesting said double stranded nematode RNA sequence.

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2. The transgenic plant of Claim 1, wherein said heterologous nucleic acid sequences are operably linked to the same promoter.

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3. The transgenic plant of Claim 1, wherein said heterologous nucleic acid sequences are separated by a loop sequence.

4. The transgenic plant of Claim 2, wherein said promoter is a tissue specific promoter.

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5. The transgenic plant of Claim 2, wherein said promoter is a constitutive promoter.

6. The transgenic plant of Claim 1, wherein said heterologous nucleic acid sequences are operably linked to separate promoters.

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7. The transgenic plant of Claim 1, wherein one of said heterologous nucleic acid sequences is complementary to an RNA sequence selected from the group consisting of nematode Major sperm protein, RNA polymerase II, and Chitin synthase RNA sequences.

8. The transgenic plant of Claim 7, wherein said heterologous nucleic acid sequences are at least 21 bases in length.
9. Seeds from the transgenic plant of Claim 1.
- 5 10. Leaves from the transgenic plant of Claim 1.
11. Roots from the transgenic plant of Claim 1.
- 10 12. Stems from the transgenic plant of Claim 1.
13. The transgenic plant of Claim 1, wherein double stranded RNA is complementary to a nematode embryonic lethal phenotype gene.
- 15 14. The transgenic plant of Claim 1, wherein double stranded RNA is complementary to a nematode sterile phenotype gene.
15. A vector comprising heterologous nucleic acid sequences encoding a double stranded nematode RNA sequence, wherein said double stranded RNA sequence inhibits the proliferation of nematodes ingesting said double stranded RNA sequence.
- 20 16. The vector of Claim 15, wherein said heterologous nucleic acid sequences are operably linked to the same promoter.
- 25 17. The vector of Claim 15, wherein said heterologous nucleic acid sequences are separated by a loop sequence.
18. The vector of Claim 16, wherein said promoter is a tissue specific promoter.
- 30 19. The vector of Claim 16, wherein said promoter is a constitutive promoter.

20. The vector of Claim 15, wherein said heterologous nucleic acid sequences are operably linked to separate promoters.

5 21. The vector of Claim 15, wherein one of said heterologous nucleic acid sequences is complementary to an RNA sequence selected from the group consisting of nematode Major sperm protein, RNA polymerase II, and Chitin synthase RNA sequences.

10 22. The vector of Claim 21, wherein said heterologous nucleic acid sequences are at least 21 bases in length.

23. A transgenic plant comprising the vector of Claim 15.

15 24. Animal feed comprising plant tissue from the transgenic plant of Claim 23.

25. The animal feed of Claim 24, wherein said plant tissue is selected from the group consisting of leaves, seeds, stems and roots.

26. A method for controlling nematodes comprising:

20 a) providing transgenic plant tissue comprising heterologous DNA sequences encoding a double stranded nematode RNA; and

b) growing said transgenic plant so that said double stranded nematode RNA is expressed in plant tissue; wherein the proliferation of nematodes feeding on said plant tissue is reduced as compared to nematodes feeding on non-transgenic plant tissue.

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27. The method of Claim 26, wherein said nematodes are plant parasitic nematodes.

28. The method of Claim 26, wherein said nematodes are animal parasitic nematodes.

29. The method of Claim 26, wherein said double stranded nematode RNA is orally active to prevent the proliferation of nematodes.

30. The method of Claim 26, wherein said nematodes orally ingest said double stranded nematode RNA.

31. The method of Claim 26, wherein said heterologous DNA sequences are located on a vector.

32. The method of Claim 31, wherein said heterologous DNA sequences are operably linked to a promoter.

33. The method of Claim 31, wherein said heterologous DNA sequences are operably linked to the same promoter.

34. The method of Claim 31, wherein said promoter is a tissue specific promoter.

35. The method of Claim 31, wherein said promoter is a constitutive promoter.

36. The method of Claim 26, wherein said heterologous DNA sequences are separated by a loop sequence.

37. The method of Claim 26, wherein one of said heterologous nucleic acid sequences is complementary to an RNA sequence selected from the group consisting of nematode Major sperm protein, RNA polymerase II, and Chitin synthase RNA sequences.

38. The method of Claim 26, wherein said heterologous nucleic acid sequences are at least 21 bases in length.

39. The method of Claim 26, wherein double stranded nematode RNA is complementary to an embryonic lethal phenotype gene.

5 40. The method of Claim 26, wherein said nematodes feeding on said plant tissue are killed.

41. The method of Claim 26, wherein double stranded nematode RNA is complementary to a sterile phenotype gene.

10 42. A transgenic plant expressing a heterologous double stranded nematode RNA sequence at a level such that nematodes ingesting said heterologous double stranded nematode RNA sequences exhibit decreased proliferation as compared to nematodes feeding on non-transgenic plants.

15 43. A pharmaceutical composition comprising plant material derived from the plant of Claim 1.